TENT COOPERATION TRE. Y

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day month year) 22 October 1999 (22.10.99)	
International application No. PCT/SE99/00395	**Applicant's or agent's file reference** PCT 51001 lt
International filing date (day/month/year) 12 March 1999 (12.03.99)	**Priority date** (day/month/year) 13 March 1998 (13.03.98)

Applicant

APPELQUIST, Håkan et al

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

23 August 1999 (23.08.99)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer F. Baechler
Facsimile No.: (41-22) 740 14 35	Telephone No.: (41-22) 338 83 38

The demand must be filed directly with the competent International Preliminary Examining Authority, or, if two or more Authorities are competent, with the one chosen by the applicant. Full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ SE

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only

Identification of IPEA	Date of receipt of DEMAND

Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION

Applicant's or agent's file reference: PCT 51001 AK

International application No.	International filing date *(day/month/year)*	(Earliest) Priority date *(day/month/year)*
PCT/SE99/00395	12/3/99	13/3/98

Title of invention: "A support device"

Box No. II APPLICANT(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Alfa Laval AB
SE-147 80 Tumba
Sweden

Telephone No.:

Facsimile No.:

Teleprinter No.:

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Sweden	Sweden

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

APPELQUIST, Håkan
Högsätersvägen 18
SE-141 44 Huddinge
Sweden

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Sweden	Sweden

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

SETTERBERG, Jan
Hällebergsvägen 26
SE-141 41 Huddinge
Sweden

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
Sweden	Sweden

☐ Further applicants are indicated on a continuation sheet.

See Notes to the demand form

International application No.
PCT/SE99/00395

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is [X] agent [ ] common representative

and [X] has been appointed earlier and represents the applicant(s) also for international preliminary examination.

[ ] is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

[ ] is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

BJERKÉNS PATENTBYRÅ KB, represented by
BERGLUND, Stefan; BJERKÉN, Håkan;
FRÖDERBERG, Oskar; ISRAELSSON, Stefan; or
OLSSON, Jan;
Östermalmsgatan 58
SE-114 50 Stockholm
SWEDEN

Telephone No.: 08-662 08 70

Facsimile No.: 08-663 02 60

Teleprinter No.:

[ ] **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination **to start on the basis of:**

[X] the international application as originally filed

the description [ ] as originally filed
[ ] as amended under Article 34

the claims [ ] as originally filed
[ ] as amended under Article 19 (together with any accompanying statement)
[ ] as amended under Article 34

the drawings [ ] as originally filed
[ ] as amended under Article 34

2. [ ] The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. [ ] The applicant wishes the start of the international preliminary examination **to be postponed** until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English

[X] which is the language in which the international application was filed.

[ ] which is the language of a translation furnished for the purposes of international search.

[X] which is the language of publication of the international application.

[X] which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby **elects all eligible States** *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes **not to elect:**

International application No.
PCT/SE99/00395

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:		For International Preliminary Examining Authority use only: received	not received
1. translation of international application	sheets	☐	☐
2. amendments under Article 34	sheets	☐	☐
3. copy (or, where required, translation) of amendments under Article 19	sheets	☐	☐
4. copy (or, where required, translation) of statement under Article 19	sheets	☐	☐
5. letter	sheets	☐	☐
6. other *(specify)*	sheets	☐	☐

The demand is also accompanied by the item(s) marked below:

1. [X] fee calculation sheet
2. [ ] separate signed power of attorney
3. [ ] copy of general power of attorney; reference number, if any:
4. [ ] statement explaining lack of signature
5. [ ] nucleotide and or amino acid sequence listing in computer readable form
6. [ ] other *(specify)*:

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand)

Stockholm, 19 August, 1999
Bjerkéns Patentbyrå KB

Stefan Berglund

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):
3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. ☐ The applicant has been informed accordingly.
4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.
5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

See Notes to the demand form

CHAPTER II

PCT

FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

International application No. PCT/SE99/00395

Applicant's or agent's file reference PCT 51001 AK

For International Preliminary Examining Authority use only

Date stamp of the IPEA

Applicant

Alfa Laval AB et al

Calculation of prescribed fees

1. Preliminary examination fee ..... 4 200:- P

2. Handling fee *(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)* ..... 1 250:- H

3. Total of prescribed fees
Add the amounts entered at P and H and enter total in the TOTAL box 5 450:-
TOTAL

Mode of Payment

- [ ] authorization to charge deposit account with the IPEA (see below)
- [X] cheque
- [ ] postal money order
- [ ] bank draft
- [ ] cash
- [ ] revenue stamps
- [ ] coupons
- [ ] other *(specify)*:

Deposit Account Authorization *(this mode of payment may not be available at all IPEAs)*

The IPEA _____ [ ] is hereby authorized to charge the total fees indicated above to my deposit account.

[ ] *(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)* is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

Deposit Account Number _____ Date *(day/month/year)* _____ Signature _____

See Notes to the fee calculation sheet

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference *(if desired) (12 characters maximum)* PCT 51001 lt

Box No. I TITLE OF INVENTION

"A support device"

Box No. II APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Alfa Laval AB
SE-147 80 Tumba
SWEDEN

☐ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State *(that is, country)* of nationality: Sweden

State *(that is, country)* of residence: Sweden

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

APPELQUIST, Håkan
Högsätersvägen 18
SE-141 44 Huddinge
SWEDEN

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: Sweden

State *(that is, country)* of residence: Sweden

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

BJERKENS PATENTBYRÅ KB, represented by
BERGLUND, Stefan; ISRAELSSON, Stefan;
BJERKÉN, Håkan; FRÖDERBERG, Oskar; or
OLSSON, Jan;
Östermalmsgatan 58
SE-114 50 Stockholm, SWEDEN

Telephone No. 08 - 662 08 70

Facsimile No. 08 - 663 02 60

Teleprinter No.

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

SETTERBERG, Jan
Hällebergsvägen 26
SE-141 41 Huddinge
SWEDEN

This person is:
- [ ] applicant only
- [x] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: Sweden

State *(that is, country)* of residence: Sweden

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [x] the United States of America only
- [ ] the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- [ ] applicant only
- [ ] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [ ] the United States of America only
- [ ] the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- [ ] applicant only
- [ ] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [ ] the United States of America only
- [ ] the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- [ ] applicant only
- [ ] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [ ] the United States of America only
- [ ] the States indicated in the Supplemental Box

- [ ] Further applicants and/or (further) inventors are indicated on another continuation sheet.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) *(mark the applicable check-boxes; at least one must be marked)*:

Regional Patent

- ☐ AP **ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☐ EA **Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP **European Patent:** AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☐ OA **OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

- ☐ AL Albania
- ☐ AM Armenia
- ☐ AT Austria and utility model
- ☐ AU Australia
- ☐ AZ Azerbaijan
- ☐ BA Bosnia and Herzegovina
- ☐ BB Barbados
- ☐ BG Bulgaria
- ☐ BR Brazil
- ☐ BY Belarus
- ☐ CA Canada
- ☐ CH and LI Switzerland and Liechtenstein
- ☒ CN China
- ☐ CU Cuba
- ☐ CZ Czech Republic and utility model
- ☐ DE Germany and utility model
- ☐ DK Denmark and utility model
- ☐ EE Estonia and utility model
- ☐ ES Spain
- ☐ FI Finland and utility model
- ☐ GB United Kingdom
- ☐ GE Georgia
- ☐ GH Ghana
- ☐ GM Gambia
- ☐ GW Guinea-Bissau
- ☐ HR Croatia
- ☐ HU Hungary
- ☐ ID Indonesia
- ☐ IL Israel
- ☐ IS Iceland
- ☒ JP Japan
- ☐ KE Kenya
- ☐ KG Kyrgyzstan
- ☐ KP Democratic People's Republic of Korea
- ☐ KR Republic of Korea
- ☐ KZ Kazakhstan
- ☐ LC Saint Lucia
- ☐ LK Sri Lanka
- ☐ LR Liberia
- ☐ LS Lesotho
- ☐ LT Lithuania
- ☐ LU Luxembourg
- ☐ LV Latvia
- ☐ MD Republic of Moldova
- ☐ MG Madagascar
- ☐ MK The former Yugoslav Republic of Macedonia
- ☐ MN Mongolia
- ☐ MW Malawi
- ☐ MX Mexico
- ☐ NO Norway
- ☐ NZ New Zealand
- ☐ PL Poland
- ☐ PT Portugal
- ☐ RO Romania
- ☐ RU Russian Federation
- ☐ SD Sudan
- ☐ SE Sweden
- ☐ SG Singapore
- ☐ SI Slovenia
- ☐ SK Slovakia and utility model
- ☐ SL Sierra Leone
- ☐ TJ Tajikistan
- ☐ TM Turkmenistan
- ☐ TR Turkey
- ☐ TT Trinidad and Tobago
- ☐ UA Ukraine
- ☐ UG Uganda
- ☒ US United States of America
- ☐ UZ Uzbekistan
- ☐ VN Viet Nam
- ☐ YU Yugoslavia
- ☐ ZW Zimbabwe

Check-boxes reserved for designating States (for the purposes of a national patent) which have become party to the PCT after issuance of this sheet:

- ☐ .....
- ☐ .....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)*

Box No. VI PRIORITY CLAIM ☐ Further priority claims are indicated in the Supplemental Box.

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is: national application: country	regional application:* regional Office	international application: receiving Office
item (1) 13/3/98	9800832-9	Sweden		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): (1)

* *Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.*

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) *(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):* ISA / SE

Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority):*

Date *(day/month/year)*: 9/10/98 Number: SE 98/00208 Country *(or regional Office)*: Sweden

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following **number of sheets**:

request	:	4
description (excluding sequence listing part)	:	8
claims	:	2
abstract	:	1
drawings	:	3
sequence listing part of description	:	
Total number of sheets	:	18

This international application is **accompanied by** the item(s) marked below:

1. ☒ fee calculation sheet
2. ☐ separate signed power of attorney
3. ☐ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☐ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☒ other *(specify)*: ITS-report

Figure of the drawings which should accompany the abstract: 2

Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

Stockholm, 12 March 1999
Bjerkéns Patentbyrå KB

Stefan Berglund

For receiving Office use only

1. Date of actual receipt of the purported international application:
2. Drawings: ☐ received: ☐ not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:
4. Date of timely receipt of the required corrections under PCT Article 11(2):
5. International Searching Authority (if two or more are competent): ISA /
6. ☐ Transmittal of search copy delayed until search fee is paid.

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

This sheet is not pa[illegible]and does not count as a sheet of the intern[illegible]al application.

PCT

FEE CALCULATION SHEET

Annex to the Request

For receiving Office use only

International application No.

Date stamp of the receiving Office

Applicant's or agent's file reference: PCT 51001 lt

Applicant: Alfa Laval AB et al

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE . . . . . 1 000:- T

2. SEARCH FEE . . . . . 6 200:- S

International search to be carried out by _____

(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains 18 sheets.

first 30 sheets 3 500:- b1

_____ (remaining sheets) x _____ (additional amount) = _____ b2

Add amounts entered at b1 and b2 and enter total at B . . . . 3 500:- B

Designation Fees

The international application contains 4 designations.

4 (number of designation fees payable *(maximum 11)*) x 800:- (amount of designation fee) = 3 200:- D

Add amounts entered at B and D and enter total at I . . . . . 6 700:- I

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT *(if applicable)* . . . . . P

5. TOTAL FEES PAYABLE . . . . . SEK 13 900:- TOTAL

Add amounts entered at T, S, I and P, and enter total in the TOTAL box

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

☐ authorization to charge deposit account (see below)	☐ bank draft	☐ coupons
☒ cheque	☐ cash	☐ other *(specify)*:
☐ postal money order	☐ revenue stamps	

DEPOSIT ACCOUNT AUTHORIZATION *(this mode of payment may not be available at all receiving Offices)*

The RO/ _____

☐ is hereby authorized to charge the total fees indicated above to my deposit account.

☐ is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

☐ is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.

Deposit Account No. _____ Date *(day/month/year)* _____ Signature _____

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/00395

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B04B 9/12 // F16C 27/04, F16F 3/12
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B04B, F16C, F16F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EDOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SE 505128 C2 (ALFA LAVAL AB), 30 June 1997 (30.06.97)	1-10
	--	
Y	US 2487343 A (F.S. KOPF), 8 November 1949 (08.11.49)	1-10
	--	
Y	DE 2626169 A1 (SKF INDUSTRIAL TRADING AND DEVELOPMENT CO. B.V.), 23 December 1976 (23.12.76)	1-10
	--	
Y	US 4854556 A (PIETRZAK), 8 August 1989 (08.08.89)	1-10
	--	

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" erlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 June 1999	9 July 1999
Name and mailing address of the ISA Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Sune Söderling / MR Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/00395

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4874154 A (ZIMBONE), 17 October 1989 (17.10.89) ---	1-10
Y	US 4957277 A (PATON), 18 Sept 1990 (18.09.90) --- --------	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

01/06/99

International application No.
PCT/SE 99/00395

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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PATENT COOPERATION TREATY

PCT

REC'D 26 JUN 2000

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT 51001 AK	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/SE99/00395	International filing date *(day month year)* 12.03.1999	Priority date *(day month year)* 13.03.1998
International Patent Classification (IPC) or national classification and IPC7 B04B 9/12 // F16C 27/04, F16F 3/12		
Applicant Alfa Laval AB et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

   - I ☐ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23.08.1999	14.06.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-666 72 88 Telex 17978 PATOREG-S	Authorized officer Sune Söderling / MRo Telephone No. 08-782 25 00

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/SE99/00395

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*

☒ the international application as originally filed.

☐ the description. pages _____ . as originally filed.
pages _____ . filed with the demand.
pages _____ . filed with the letter of _____ .
pages _____ . filed with the letter of _____ .

☐ the claims. Nos. _____ . as originally filed.
Nos. _____ . as amended under Article 19.
Nos. _____ . filed with the demand.
Nos. _____ . filed with the letter of _____ .
Nos. _____ . filed with the letter of _____ .

☐ the drawings. ~~sheets~~/fig _____ . as originally filed.
~~sheets~~/fig _____ . filed with the demand
~~sheets~~/fig _____ . filed with the letter of _____ .
~~sheets~~/fig _____ . filed with the letter of _____ .

2. The amendments have resulted in the cancellation of:

☐ the description. pages _____
☐ the claims. Nos. _____
☐ the drawings. ~~sheets~~/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. Resoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations

The invention relates to a support device for a spindle, which carries a centrifuge rotor of a centrifugal separator and which is provided in a frame member by means of a bearing member to be rotatable about an axis of rotation. The support device comprises at least three support members, which are arranged to absorb relative movements between the centrifuge rotor and the frame member and which each is provided between the bearing member and the frame member and has a longitudinal axis extending outwardly with respect to the axis of rotation. Each support member comprises a helical spring member, having a wire extending in an essentially helical path in such a manner that a space is formed between adjacent rounds of the wire.

The object of the invention is to provide a support device, which from a construction point is less complicated than the support devices known up to now and by which the problems mentioned above may be remedied. In particular, it is aimed at a support device offering an optimal stiffness and concurrently an optimal dampening of the relative movements between the centrifuge rotor and the frame member.

This object is achieved, as stated in the characterising part of claim 1, in that each support member comprises a rubber material provided at least in said space and arranged to increase the stiffness of the support member and at the same time to provide a dampening action of the support member.

.../...

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

Cited documents:
D1: SE 505 128 C2
D2: US 2 487 343 A
D3: DE 2 626 169 A1
D4: US 4 854 556 A
D5: US 4 874 154 A
D6: US 4 957 277 A

Each of D1 and D2 respectively discloses support devices for a spindle, which carries a rotor of a centrifugal separator according to the preamble of claim 1.

Each of D3-D6 respectively discloses helical spring devices, which is encapsulated in polyurethane or rubber and used in different technical applications.

It must not be considered as common practice to a person ordinary skilled in the art to provide a support device disclosed in each of D1 and D2 respectively with a spring device disclosed in each of D3-D6 respectively and thus arrive at a support device stated in claim 1. The support device stated in claim 1 is therefore not obvious to a person ordinary skilled in the art and does therefore fulfil the requirements novelty according to Article 33(2) and the requirements of inventive step according to Article 33(3).

Claim 1 also fulfils the requirements of industrial applicability according to Article 33(4).

Claims 2-10 disclose further features of the invention, which fulfil the requirements of patentability stated in paragraphs (2-4) of Article 33.

PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

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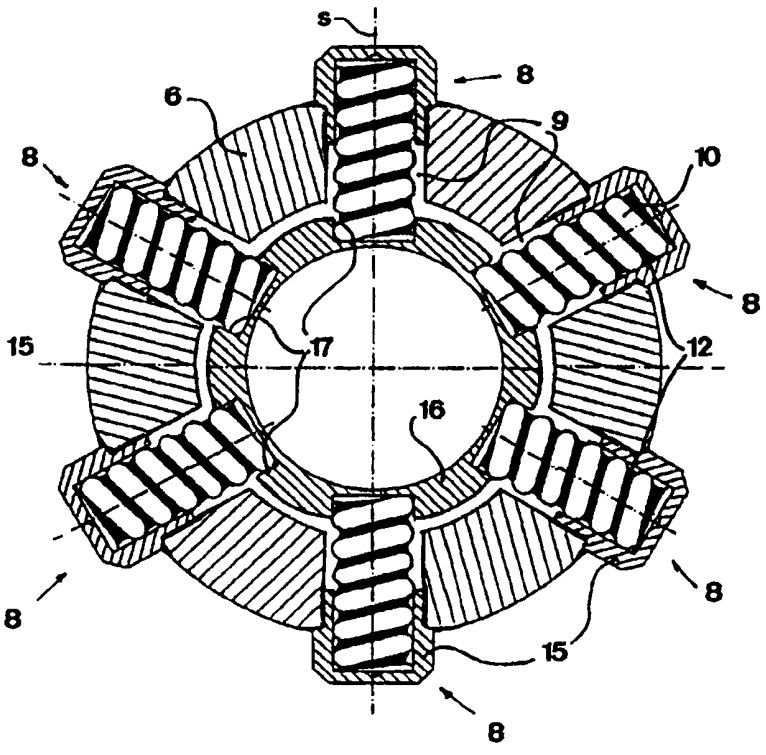
(54) Title: A SUPPORT DEVICE

(57) Abstract

The invention refers to a support device (6) for a spindle, which carries a centrifuge rotor of a centrifugal separator and which is provided in a frame member by means of a bearing member to be rotatable about an axis of rotation. The support device (6) comprises at least three support members (8) which are arranged to absorb relative movements between the centrifuge rotor and the frame member and which each is provided between the bearing member and the frame member and has a longitudinal axis (s) extending outwardly with respect to the axis of rotation. Each support member (8) comprises a helical spring element (10), having a wire extending in an essentially helical path in such a manner that a space is formed between adjacent rounds of the wire. In order to increase the stiffness of the support members (8) and to provide a dampening of the relative movements, each support member (8) comprises a rubber material (12) provided at least in said spaces.



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5

A support device

10 THE BACKGROUND OF THE INVENTION AND PRIOR ART

The present invention refers to a support device for a spindle, which carries a centrifuge rotor of a centrifugal separator and which is provided in a frame member by means of a bearing member to be
15 rotatable about an axis of rotation, wherein the support device comprises at least three support members, which are arranged to absorb relative movements between the centrifuge rotor and the frame member and which each is provided between the bearing member and the frame member and has a longitudinal axis
20 extending outwardly with respect to the axis of rotation, wherein each support member comprises a helical spring element, having a wire extending in an essentially helical path in such a manner that a space is formed between adjacent rounds of the wire.

25 Conventional spindle support devices for centrifugal separators are mainly of two different kinds, namely support devices, in which helical springs apply a force to oscillation-dampening friction buffers, and support devices, which are constructed by resilient rubber elements producing a dampening effect by inner friction.

30

Such known support devices comprises many components, which make them complicated and expensive. The dampening properties of the friction buffers as well as of the rubber elements are difficult to calculate. On the friction dampening surfaces coatings (coke) are
35 formed, which change the dampening properties and result in a great risk for jamming. In the friction buffers, wearing particles are formed, which reduce the lifetime of the support device. The

conduct of heat is insufficient in these known support devices, since rubber has a low heat conductivity and the friction surfaces of the friction buffers deteriorate the conduct of heat.

WO89/10794 discloses an example of such a known support device for a centrifugal separator having a centrifuge rotor which is rotatable in a frame member by means of a bearing member. The support device comprises a number of support members extending radially outwardly from the bearing member and which each encloses a helical spring element. Consequently, these support members are arranged to permit relative radial movements between the centrifuge rotor and the frame member by being compressed in a respective space of the frame member. The helical spring elements thereby act on a piston movable in the space and abutting the outer wall of a bearing housing. By means of the spring constant of the helical spring elements, a certain stiffness of the known support device is obtained, which together with the resiliency of, for instance, the rotor spindle, determines the critical number of revolutions of the centrifuge rotor. In centrifugal separators, the helical springs of this type have to be dimensioned to the frequently very high stresses and fatigue risks to which they are subjected. The dampening of the radial movements is obtained by means of the friction which arises between the piston and its contact surfaces, in particular the outer wall of the bearing housing. The friction which arises results, in addition to the dampening of the relative movements, also in the generation of heat. Such a heat generation is not desirable and forces the bearing to operate at a relatively high temperature, which reduces the lifetime of the bearing. Another problem is that the arrangement of moving pistons is rather space requiring. Such a space may be difficult to provide for the support device in a centrifugal separator, in particular outside the so-called necte bearing. In addition, these known support devices have a rather complicated construction, which of course makes the manufacture and the mounting labour demanding and expensive. In addition, it is difficult to conduct heat away from the bearing member.

SUMMARY OF THE INVENTION

The object of the present invention is to provide a support device, which from a construction point of view is less complicated than the support devices known up to now and by which the problems mentioned above may be remedied. In particular, it is aimed at a support device offering an optimal stiffness and concurrently an optimal dampening of the relative movements between the centrifuge rotor and the frame member.

This object is obtained by the support device initially defined, which is characterized in that each support member comprises a rubber material provided at least in said space and arranged to increase the stiffness of the support member and at the same time to provide a dampening action of the support member. By such a support member, a desired stiffness may be obtained by dimensioning the helical spring elements in combination with the design and choice of hardness of the rubber material. Since the stiffness determines the critical number of revolutions of the centrifuge rotor, one may by this design of the support device obtain a desired critical number of revolutions. A suitable level of the dampening of the relative movements may be obtained by dimensioning the rubber material between the wire rounds of the helical spring element, i.e. the rubber material is, according to the invention, arranged in such a manner that it has a dampening effect to said relative movements. The incompressible rubber material will thereby be subjected to alternatively compression, expansion and therebetween inhomogeous loads due to shearing or bending of the helical spring element and the rubber material. By providing a rubber material in this manner in the spaces of the helical spring element, a high stiffness may be obtained by means of smaller helical springs without any risk for overload and/or fatigue. The inner friction, which dampens the oscillating movements, generates heat which is uniformly distributed and conducted by the helical spring element. In comparison with previously known, similar support devices, a support device designed in this manner is space saving.

According to the invention, a desired dampening may be obtained by providing rubber material merely in the space between the wire rounds. According to an embodiment of the invention, the wire is, however, at least partly embedded in the rubber material. In such a manner, the dampening effect of the rubber material may be increased and according to another embodiment, the dampening effect may be further increased by embedding substantially the wire in the rubber material.

According to a further embodiment of the invention, the wire is manufactured in a spring material, wherein the spring material is fixedly connected to the rubber material. In such a manner, the rubber material is forced to follow the movements of the helical spring element, i.e. the dampening of the rubber material is acting continuously. Thereby, the spring material may advantageously be fixedly connected to the rubber material by vulcanisation.

According to a further embodiment of the invention, means are arranged to enable the pretensioning of the helical spring elements in the direction of the respective longitudinal axis. Furthermore, each support member may be provided in a space which is delimited by a stop member, wherein the stop member may be positionable in different positions along the longitudinal axis in order to obtain a variable pretensioning degree of the helical spring element.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention is now to be explained by means of different embodiments described as examples and with reference to the drawings attached, in which

Fig 1 discloses schematically a sideview of parts of a centrifugal separator having a support device according to the invention.
Fig 2 discloses a radial section through the support device according to a first embodiment of the invention.

Fig 3 discloses a radial section through a support device according to a second embodiment of the invention.
Figs 4-10 disclose sectional views of different variants of the support members of the support device according to the invention.

DETAILED DESCRIPTION OF DIFFERENT EMBODIMENTS

Fig 1 discloses schematically parts of a centrifugal separator having a vertical spindle 1, which is journalled in a lower bearing 2 and an upper bearing 3. The lower bearing 2 is arranged to absorb essentially axial forces acting on the spindle 1 and the upper bearing 3 is arranged to absorb essentially radial forces acting on the spindle 1. The spindle 1 carries at its upper end above the upper bearing 3 a centrifuge rotor 4. The spindle 1 and the centrifuge rotor 4 are rotatable about an axis x of rotation and driven in the example disclosed via a screw gear 5 but may of course also be belt driven.

In the example disclosed, the upper bearing 3 is supported by means of a support device 6 which is fixedly connected to a substantially stationary frame member 7 and which comprises six support members 8 uniformly distributed around the spindle 1, see also Fig 2, which counteract but permit limited relative movements between the spindle 1 and the frame member 7. In particular, the support device 6 is arranged to permit a limited pivoting movement of the spindle 1, and details connected thereto, such as the centrifuge rotor 4, and the upper bearing 3 in relation to the frame member 7. The support device 6 may comprise more or less than six support members 8.

Each of the support members 8 has a longitudinal axis s which extends substantially radially with respect to the axis x of rotation. Each support member 8 is, which appears from Figs 2 and 3, provided in a space 9 of the support device 6, which space has the shape of a substantially circular cylindrical hole extending in essentially the same radial direction as the longitudinal axis s with respect to the axis x rotation. Furthermore, each support member 8

comprises a helical spring element 10 which is formed by a wire extending in an essentially helical path in such a manner that the wire forms a body of rotation having an axis of rotation coinciding with the longitudinal axis s. Furthermore, the wire forms a space 11 between adjacent rounds of the wire, see Figs 4-10. The wire is manufactured in an elastic, resilient material, preferably spring steel.

According to the invention, each support member 8 comprises a rubber material 12 extending in at least said spaces 11. Figs 4-10 disclose more closely how the rubber material 12 may be provided in relation to the helical spring element 10.

In the embodiment disclosed in Fig 6, the rubber material 12 is substantially merely provided in the spaces 11 between adjacent rounds of the wire of the helical spring element 10, i.e. the rubber material forms a tubular body having a wall thickness which is essentially equal to the thickness of the wire. In the embodiments according to Figs 5 and 8, the wire is at least partly embedded in the rubber material 12. In Fig 5, the rubber material 12 extends to an outer delimiting surface of the body of rotation formed by the helical spring element 10 and in Fig 8, the rubber material 12 extends to an inner delimiting surface of the body of rotation formed by the helical spring element 10. In the embodiment disclosed in Figs 4 and 7, the wire of the helical spring element 10 is completely embedded in the rubber material 12.

In the embodiments according to Figs 4 and 7, the rubber material 12 consequently forms an essentially complete, full body, which has an essentially circular cylindrical shape and in which the helical spring element 10 is completely embedded or enclosed. In the embodiments according to Figs 6-8, the rubber material forms a corresponding body having an essential circular cylindrical hole 13 extending through the body in the direction of the longitudinal axis s.

In the embodiments according to Figs 9 and 10, the rubber material 12 also forms a complete, full body having an essentially circular cylindrical shape and being provided with a circular recess 14 in one of the end surfaces, and with a circular recess 14 in each end surface, respectively.

In all embodiments according to Figs 4-10, the resilient material of the wire is fixedly connected to the rubber material 12, preferably through a vulcanisation process.

As appears from Fig 2, each support member 8 is enclosed in one of the spaces 9 mentioned above by means of a stop member in the shape of a screw member 15 which is screwed into a thread of the space 9. The support member 8 abuts, by its radially outer surface the screw member 15 and by its radial inner surface the bearing housing 16 carrying the upper bearing 3. In particular, the radially inner end of the support member 8 is provided in a recess 17 of the bearing housing 16. By means of the screw member 15, it is possible to pretension the helical spring element 10 of the support member 8 to a desired degree of pretensioning in the direction of the longitudinal axis s.

In the embodiment disclosed in Fig 3, the radially inner end of each support member 8 is provided in a piston member 18 which is displaceable in the recess 9 in the direction of the longitudinal axis s. The piston member 18 has a front surface 19 which is arranged to abut a peripheral surface portion 20 of the bearing housing 16. During the relative movements mentioned above, the front surface 19 will slide on the opposite surface portion 20, wherein the friction which arises contributes to a further dampening of the relative movements.

It is to be noted that, as appears from Figs 2 and 3, both the end rounds of the helical spring element 10 are at least partly in heat transferring metallic contact with the bearing housing 16 and the stop member 15 of the support member 8, respectively, which facilitates the conduct of heat from the support member 8.

The present invention is not restricted to the embodiments disclosed but may be varied and modified within the scope of the following claims.

In the examples disclosed in the figures, the spaces between all the wire rounds of the helical springs are completely filled with rubber material. In order to obtain a desired stiffness and a desired dampening characteristic, it is possible however, within the scope of the present invention, to fill merely the spaces between a part of the wire rounds of the helical springs and/or the spaces may only partly be filled with rubber material.

It is to be noted that although the helical spring elements 10 are disclosed in the shape of a circular cylindrical helical spring, it is possible within the scope of the invention to design these springs as conical helical springs. They may also have a cross-sectional shape which deviates from a circular shape. Moreover, the cross-sectional dimension of the wire of the spring element 10 disclosed in Figs 4-10 is only schematic.

In the embodiments disclosed, the longitudinal axis s of all support members 8 extend in a common radial plane. However, it is also possible to provide the support members 8 in such a manner that the axes s extend in different planes, for instance, in two parallel radial planes in such a manner that every second support member 8 is associated to one of the planes and every second support member 8 to the other plane. In such a manner, further space may be obtained so that more support members 8 than the support members disclosed in Figs 2 and 3 may be provided, for instance 12 support members 8.

Claims

1. A support device for a spindle (1), which carries a centrifuge rotor (4) of a centrifugal separator and which is provided in a frame member (7) by means of a bearing member (3) to be rotatable about an axis (x) of rotation, wherein the support device (6) comprises at least three support members (8), which are arranged to absorb relative movements between the centrifuge rotor (4) and the frame member (7) and which each is provided between the bearing member (3) and the frame member (7) and has a longitudinal axis (s) extending outwardly with respect to the axis (x) of rotation, wherein each support member (8) comprises a helical spring element (10), having a wire extending in an essentially helical path in such a manner that a space (11) is formed between adjacent rounds of the wire, characterized in that each support member (8) comprises a rubber material (12) provided at least in said space (11) and arranged to increase the stiffness of the support member (8) and at the same time to provide a dampening action of the support member (8).

2. A support device according to claim 1, characterized in that the rubber material (12) is arranged in such a manner that it produces a dampening effect to said relative movements.

3. A support device according to any one of claims 1 and 2, characterized in that the wire is at least partly embedded in the rubber material (12).

4. A support device according to any one of claims 1-3, characterized in that the wire is substantially embedded in the rubber material (12).

5. A support device according to any one of the preceding claims, characterized in that the wire is manufactured in a spring material and that the spring material is fixedly connected to the rubber material (12).

6. A support device according to claim 5, characterized in that the spring material is fixedly connected to the rubber material (12) by a vulcanisation.

7. A support device according to any one of the preceding claims, characterized in that the longitudinal axis (s) of the support members (8) extends substantially radially with respect to the axis (x) of rotation.

8. A support device according to any one of the preceding claims, characterized by means (15) which are arranged to enable a pretensioning of the helical spring elements (10) in the direction of the respective longitudinal axis (s).

9. A support device according to any one of the preceding claims, characterized in that each support member (8) is provided in a space (9) which is delimited by a stop member (15).

10. A support device according to claim 9, characterized in that the stop member (15) is positionable in different positions along the longitudinal axis (s).

Fig 1

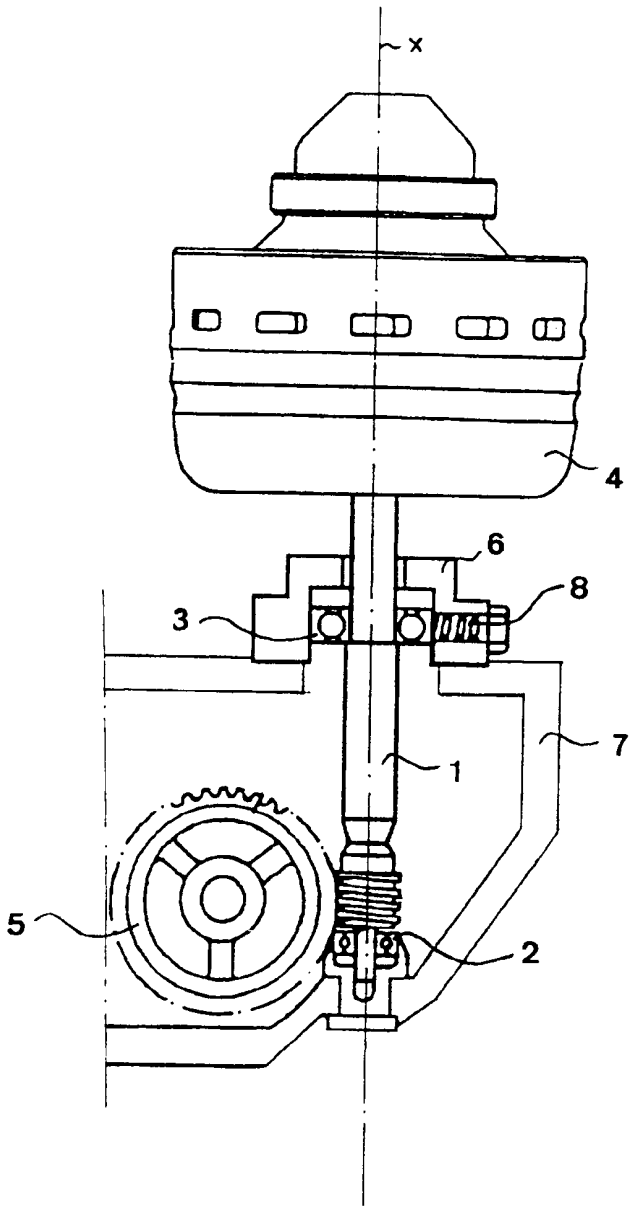


Fig 2

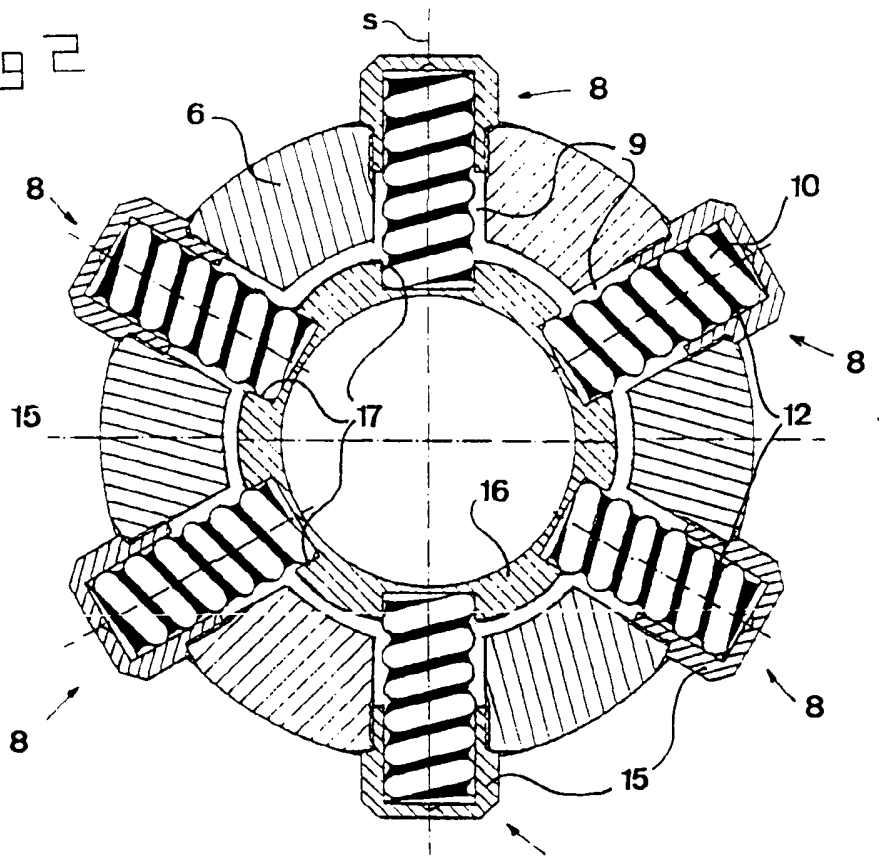


Fig 3

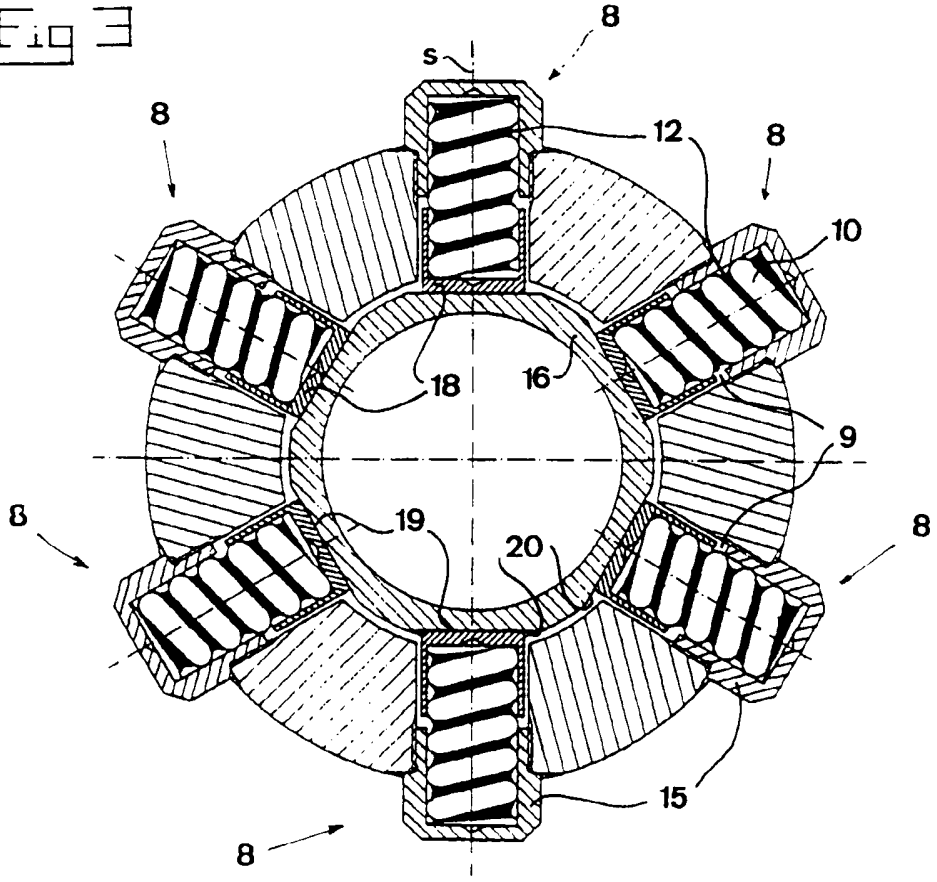


Fig 4

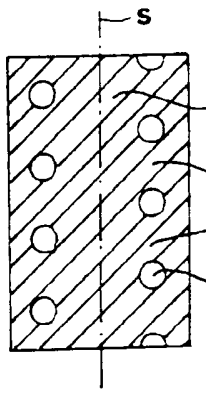


Fig 5

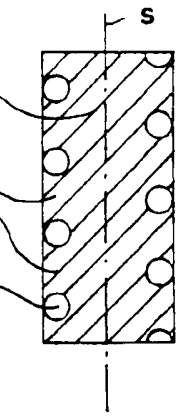


Fig 6

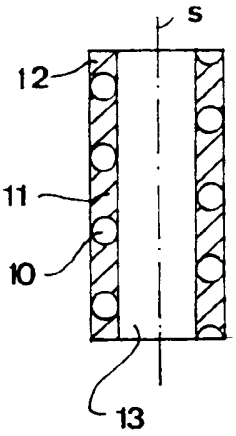


Fig 7

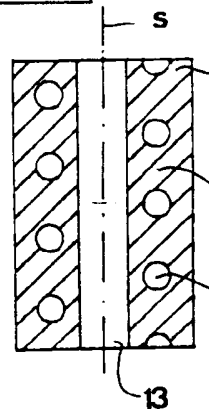


Fig 8

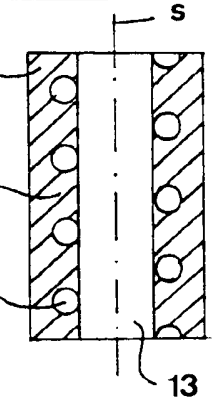


Fig 9

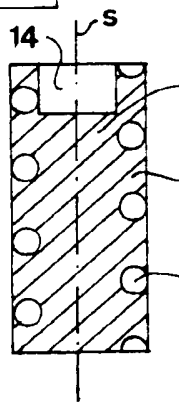
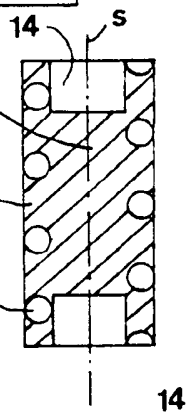


Fig 10



INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/00395

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: B04B 9/12 // F16C 27/04, F16F 3/12
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: B04B, F16C, F16F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EDOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	SE 505128 C2 (ALFA LAVAL AB), 30 June 1997 (30.06.97)	1-10
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Y	US 2487343 A (F.S. KOPF), 8 November 1949 (08.11.49)	1-10
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Y	US 4854556 A (PIETRZAK), 8 August 1989 (08.08.89)	1-10
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[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 June 1999	9 July 1999
Name and mailing address of the ISA Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Sune Söderling / MR Telephone No. +46 8 782 25 00

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 99/00395

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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International application No.
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